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ABSTRACT

The School Improvement Through Instructional Process (SITIP), an initiative undertaken by the Maryland State Department of Education (MSDE), is described, and an evaluation of its progress from December 1980 through June 1982 is provided. Innovative teaching methods introduced by the SITIP project are described: (1) active teaching; (2) mastery learning; (3) student team learning; and (4) teaching variables. Also delineated are the activities of local education agencies (LEA's) and the roles of center office staff, school-based administrators, and teachers in four areas: (1) training; (2) planning; (3) local implementation; and (4) technical assistance provided by MSDE. A model of the SITIP design is illustrated, and activity areas (preparation, initial commitment, awareness conferences, local plans drafted by LEA's, implementation, expansion, technical assistance, follow-up training, and assessment of progress and impact) are described. In a discussion of planning at both state and local levels, elements that had a direct relationship to successful implementation are identified. Descriptions are given of awareness conferences, summer institutes, and follow-ups conducted by MSDE. Included in the descriptions of these events are comments on attendance, needs and concerns of the participants, and relationships among training, planning, and implementation. Technical assistance efforts of MSDE are discussed, and evidence of their effectiveness is cited. An overview is given of the scope and impact of local implementation of the SITIP instructional processes. Critical findings are presented, including planning-related decisions that might be addressed by local educators and issues that intermediate or state education agencies might address. (JD)

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INSTRUCTIONAL IMPROVEMENT IN MARYLAND: A STUDY OF RESEARCH IN PRACTICE

EXECUTIVE SUMMARY

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Introduction

As of June 1982, 19 of Maryland's 24 school systems were implementing one or more model instructional processes proven to be effective in increasing student achievement. The processes are: Active Teaching, Mastery Learning, Student Team Learning, and Teaching Variables. All four models are research-based and were selected by Maryland State Department of Education (MSDE) as potentially useful to all schools for improving instruction in all structured academic curricula. Nearly 700 teachers in grades K-12 are using one or more of the the models in mathematics, reading/language arts, science, social studies, or other academic areas. Available data show a variety of successes including increased communication among educational groups and increases in student achievement as much as twice that predicted for the students involved.

How did this occur? The follow pages summarize key findings of a study covering the period December 1980 through June 1982 of the Maryland State Department of Education initiative in School Improvement Through Instructional Process (SITIP).

Evaluation Overview

The study addressed the activities of MSDE, as staff attempted to apply the research on classroom and school effectiveness and planned change. The study also looked at the activities of local education agencies (LEAs), and the roles played by central office staff, school-based administrators, and teachers. Four general areas were addressed: 1) training, 2) planning, 3) local implementation, and 4) technical assistance (TA).

Data were collected by process observation of all critical events (e.g., training sessions, TA meetings); site visits to schools and central offices; document analysis of state and local materials including proposals

and plans; use of surveys, interviews, and questionnaires such as the CBAM Stages of Concern questionnaire as well as routine workshop evaluation forms. Data were analyzed and reported in a series of interim written reports and (from November 1981) oral reports to MSDE staff about once a month so that information could be used to refine or improve SITIP activities.

The study focused on implementation, and success was determined largely by the extent to which LEAs carried out their own plans. While some impact data were reported, it was not the purpose of this study to evaluate SITIP in terms of student achievement.*

The SITIP Design: An Interactive Model for Program Improvement

MSDE staff were responsible for the design which has a statewide perspective, but this model of planned program improvement could readily be used by LEAs. The areas of activity are outlined below and also presented in Figure 1.

1. Preparation (open systems planning): Identify needs (e.g., demand for practical application of techniques to improve instruction), and potential solutions (e.g., mastery learning). Identify operating constraints and opportunities, particularly existing programs or policies that could form a basis for action (e.g., Maryland Professional Development Academy, Project Basic). Draft a design to apply solutions to needs within operating constraints, but with flexibility for improvement if necessary. Take care of logistics (e.g., people, time, other resources).

2. Initial Commitment: Review plan with LEA superintendents. Get commitment for local team attendance at awareness conferences. (Local team includes at least: superintendent or designate, school board member, central office instructional staff person, school principal, two teachers.) Distribute advance reading materials to participants.

*LEAs have two years to bring about student achievement improvement, i.e., until June 1983.

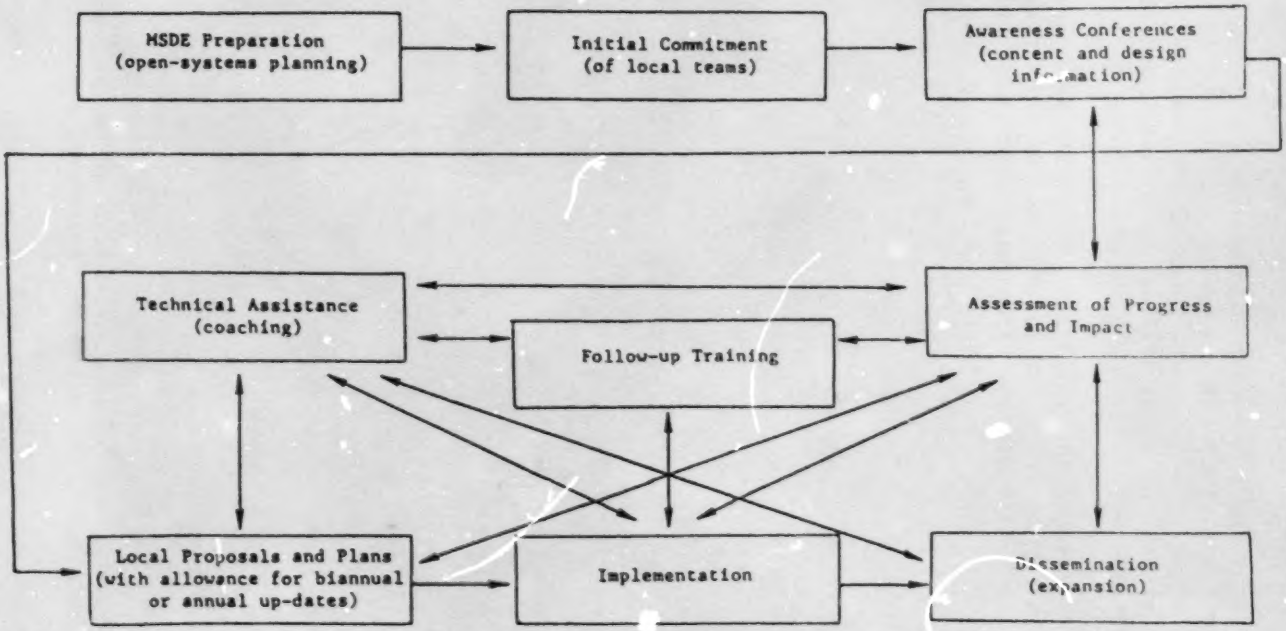


Figure 1. The SITIP Design: An Interactive Model for Program Improvement

3. Awareness Conferences (content and design information): Have each of the instructional processes presented by its developer at awareness conferences attended by LEA teams, MSDE staff, and interested others. Describe design and nature of (voluntary team) involvement.

4. Local Proposals/Plans: Help LEAs draft proposals to implement one or more of the processes. Negotiate revisions as needed at the beginning of each school year to ensure useful implementation. Encourage cross-hierarchical participation in decision-making and realistic timelines and scope for implementation planned.

5. Implementation (incremental application): Help LEAs implement selected process(es) using their own strategies but involving representatives of all role groups. Encourage innovation fidelity but allow adjustment of scope if necessary.

6. Dissemination (expansion): Encourage use of the processes in many schools, and share information about successes between LEAs.

7. Technical Assistance (coaching): Assign MSDE staff (across divi-divisions) to assist LEAs in planning, implementation, and dissemination; to conduct follow-ups; and to facilitate networking. Build capacity; do not create dependency.

8. Follow-up Training: Conduct an intensive three-day training session on each process for prospective implementers (teachers, school administrators, central office staff). Conduct annual or bi-annual follow-up training sessions (using participatory planning) to maintain quality implementation. Assist LEAs (central office staff) in planning/conducting turnkey training.

9. Assessment of Progress and Impact (cyclic): Collect and analyze data systematically and use (feedback) information to make improvements and publicize successes. (Data on local needs and concerns are of particular importance in planning/implementing every activity.)

The first six areas of the model are fairly traditional, although some elements such as commitment of local teams and allowance for revision of plans are not common. Those six areas and "follow-up training" were included in the original SITIP design. Some elements of those areas were modified as activities got underway. The areas of "technical assistance" and "assessment of progress and impact" were added and refined in response

to identified needs. The three non-traditional areas (assistance, follow-up training, and assessment) proved crucial to the success of SITIP since they were on-going, and linked areas of activity (e.g., planning and implementation) as well as needs and concerns of various groups.

The philosophy or style of leadership was democratic, encouraging participatory decision-making and voluntary involvement. Interactive communication was practiced not only between individuals or role groups within MSDE or within an LEA but also between MSDE and the LEAs. Actions were usually based on the assumption that educators care about students and want to bring about instructional improvement, and that they would do so if they have access to sound models and relevant information. It was also recognized that state initiatives are not necessarily local priorities, but consensus for action can be encouraged by allocation of grants to LEAs and provision of in-person assistance. Considerable efforts were made to build a sense of shared endeavor. Goals were suggested and choices were offered (including the option of non-participation). The application of the SITIP design provided strong evidence that program improvement (planned change) can best occur through an interactive process.

Instructional Processes: The Innovations

MSDE staff selected four instructional processes: the innovations which LEAs could implement. With the exception of Student Team Learning, the models apply findings of process-product research: all four have proven effective in improving student achievement. They vary in complexity. Complexity was determined on four criteria: 1) knowledge -- how much that is new must be learned? 2) materials -- how much do classroom

materials need to be redesigned or developed? 3) methods -- how much change is required in the way things are done in the classroom and in the school? and 4) organization -- how much role change and administrative action are required? Each model was rated on a scale of 1 to 5 (with 5 indicating high complexity) on each criterion, and a mean rating was assigned. As designed, the innovations in order of complexity are: Active Teaching (1.62), Student Team Learning (2.37), Mastery Learning (3.12), and Teaching Variables (3.75). As implemented, Teaching Variables was less complex than Mastery Learning since many local educator implemented only part of the innovation. The four processes are summarized here:

Active Teaching

Active Teaching (AT) is a system of direct instruction developed by Thomas Good and Douglas Grouws at the University of Missouri. Originally designed for the teaching of mathematics, AT consists of the following components:

1. Pre-lesson development
   Concepts and skills from the previous night's homework are reviewed, homework is checked and collected, and mental computation exercises are performed.

2. Lesson development
   Prerequisite skills and concepts are briefly reviewed, new concepts are introduced via teacher explanation and demonstration, and student comprehension is assessed through controlled practice. Controlled practice consists of practice tasks attempted by students, followed by teacher review and immediate feedback with further explanation and clarification, if necessary.

3. Seatwork
   Uninterrupted, individual, successful practice is provided in order to increase proficiency in the skills and concepts taughts during the lesson development phase. The teacher monitors, checks, and collects the seatwork providing corrective or enrichment activities where appropriate.

4. Homework
   Homework is assigned, which includes one or two review problems and problems related to the concepts developed that day. Homework assignments are short and are collected and checked by the teacher.

5. Special reviews/maintenance
   Weekly and end-of-unit reviews help to maintain the skills and concepts learned. Performance on homework assignments provides information concerning areas in need of review.

Active Teaching emphasizes active involvement of the entire class through use of stimulating instructional methods, numerous opportunities for practice, and by making expectations clear to students. Success is important and the continuous assessment of student comprehension through controlled practice and seatwork allows the teacher to correct misunderstandings before the student becomes frustrated and loses interest in the lesson.

Mastery Learning

Mastery Learning (ML), developed by Benjamin Bloom and James Block, is an instructional model which is based upon the belief that almost all students can master what they are taught, and that this learning can be accomplished in an ordinary classroom environment. Essential components of Mastery Learning include:

- Specifying the objectives to be taught.
- Developing a scope and sequence of objectives, broken down into prerequisite and component skills.
- Providing appropriate instruction aligned with the objectives to be mastered.
- Testing the students' progress in mastering the objectives through the use of a formative evaluation measure.
- Providing students who have not achieved mastery with additional corrective work in the deficient areas specified by the formative test, and providing students who have achieved mastery with enrichment activities to reinforce and supplement learning.
- Testing final mastery of the objectives with a summative evaluation measure.
- Recording student progress in terms of individual mastery of specified objectives.

Mastery Learning implementation depends upon several conditions. Teachers must believe that the majority of students can achieve mastery if given the opportunity to learn. Students must believe that they can achieve mastery if they try. Objectives should be operationally defined, and the evaluation measures should be related to the objectives and be designed to assess both higher and lower cognitive skills. Formative tests allow the teacher to assess student progress and gear instruction to meet

the needs of individual students. "Mastery" is usually defined on average as 80% of students demonstrating success on at least 80% of the objectives in a given unit of instruction.

Student Team Learning

Student Team Learning (STL) techniques use peer tutoring and team competition to facilitate student learning. Student Teams-Achievement Divisions (STAD) and Teams-Games-Tournaments (TGT) were developed by Robert Slavin at the Johns Hopkins University. Jigsaw was started at the University of Texas by Elliot Aronson who is currently at the University of California at Santa Cruz. The key factors of STL are peer interaction, cooperation, and competition. These factors have been shown to improve attitudes and achievement.

In STAD, teams are formed containing four to five members. Each team contains a mix of ability levels (determined by pre-testing) and racial and ethnic types, and includes both boys and girls. After the teacher introduces the lesson content, the teams practice the new material together, helping each other when problems arise and making sure that every member understands the concepts that have been taught. Weekly quizzes are taken individually on the new material. The team members' performances on the quiz are combined into a team score by the teacher. The number of points that each student contributes to his or her team score is determined by the amount of improvement shown by the student in comparison to previous quiz score averages. This strategy of using degree of improvement to determine student contribution to the team places emphasis on self involvement and sets reasonable goals for all students to achieve.

TGT uses the same format as STAD except for the individual quiz which is replaced with weekly tournaments. Tournament groups are determined by similarity of achievement in previous tournament performances. The points "won" by the team members during the tournament are combined into a team score and team accomplishments are recognized in a newsletter.

In Jigsaw, the lesson is divided into topics and each member of a team is assigned a topic area. Each team member works alone, then joins an "expert group" consisting of members from the other teams who have been assigned the same topic area. After discussing their topics, the students return to their teams and take turns teaching their teammates about their topic areas. Team performance on a quiz is used to determine a team score for the lesson.

Teaching Variables

Teaching Variables (TV) was developed at Research for Better Schools, Inc. (RBS). Two variables found to be strongly related to effectiveness of instruction and student achievement were identified: "content" and "time."

The "content" variable encompasses two factors: 1) assessment of prior learning, and 2) alignment of curriculum objectives and classroom instruction to the testing instrument. Staff analyze objectives, curriculum, and tests to determine alignment. Necessary development or adjustments are made to one or more of the elements in order to ensure that all three match. Test scores (e.g., CAT) are analyzed and presented to teachers by class, by student, by objective to facilitate diagnostic/prescriptive instruction. Teachers are asked to make a year-long instructional plan that takes into account both their students' prior learning and the content to be tested at the end of the year. Teachers are encouraged to record content coverage and their students' mastery throughout the school year.

The "time" variable emphasizes the importance of student engaged time (SET) in determining effectiveness of instruction. The instructional improvement cycle involves: 1) measuring SET via classroom observation by fellow teachers or principals, 2) comparing SET to research data in order to determine level of predicted achievement and opportunity for improvement, 3) reviewing research-based strategies with colleagues and selecting one to improve SET, 4) implementing strategies directly related to the identified need area (e.g., discipline, socializing, management transition), and 5) evaluating the effectiveness of the strategies in improving SET via additional classroom observations.

Planning

At state and local levels plans evolved as participants gained new knowledge. The objectives and implementation strategies remained constant, but changes were made in scope and selection of processes. Some specific findings about planning activities include:

- Local proposals written after the four awareness conferences (April 1981) did not reflect sufficient understanding of the processes to suggest successful implementation.
- Summaries of plans (revised or clarified) after the summer training (fall 1981) reflected much greater knowledge of the processes and resource requirements for implementation.
- Involvement in planning was encouraged for all three local role groups (teachers, school-building administrators, central office staff). There were three key planning activities: proposal development, participation in spring planning sessions conducted by MSDE, and participation in fall planning sessions (all in 1981). Eight LEAs involved all three role groups in at least two of the activities for a given process: none of those sites experienced subsequent communication problems.

- Low involvement in planning by central office staff caused problems (two LEAs -- school staff discontent) only when there was no common understanding of: 1) the implementation strategy and its implications, or 2) leadership responsibility for assisting teachers.

- Low involvement in planning by school administrators (four sites) caused no apparent problems. (They were kept informed by central office staff and teachers.)

- Low involvement in planning by teachers occurred at five sites, with problems (overload and resistance) in two cases where process demands were high and teachers' personal concerns were not addressed early enough in implementation.

- Selection of processes was influenced initially by the perceived relationship between a process and local interest. As participants learned more about the processes some revised selection. (Four LEAs dropped Teaching Variables.) The reason for revision was complexity: LEAs were unwilling to invest the time and energy required by complex innovations.

- Implementation strategies determined by LEAs included: 1) district wide (involving all teachers in all elementary schools in one LEA), 2) pilot/district (used by four LEAs, using a process in one or a few schools in the first year with central office commitment for involvement to expand in the second year), 3) capacity building (encouraging voluntary participation through staff development in five LEAs), and 4) a lighthouse strategy (single school implementation with voluntary involvement of others attracted by the "light of success," but no direct commitment for central office involvement in ten LEAs).

- Selection of school sites was influenced most by staff interest (68% of LEAs gave this reason). Other criteria identified by LEAs included: school characteristics (36%), school staff attendance at awareness conferences (15%), relevance of process to school need (15%), availability of resources at school (15%), and potential for research at the school (15%). All grade levels and types of schools were involved, with about 75% of them elementary.

- Selection of curricular areas was influenced by: level of student achievement (42%), staff interest (26%), relevance of process to curriculum area (20%), characteristics of organization of curriculum in selected school (10%). The most popular curricular areas were: reading/language arts (17 LEAs), mathematics (16 LEAs), science (12 LEAs), and social studies (11 LEAs).

- Scope (number of schools, teachers, amount of time for process use etc.) was not clearly defined initially, was clarified after summer training, and modified during implementation at seven sites.
- Scope was largely determined by the strategy selected and reflected local commitment or felt need. Scope was influenced by process complexity, with wider scope more feasible for less complex processes.

Elements of planning that had a direct relationship to successful implementation included: 1) cross-hierarchical participation, 2) cyclic interaction with training and assessment to allow for data-based revisions, and 3) alignment of process (innovation), scope, and implementation strategy in relationship to local interest and resources.

Training

There were three kinds of training events conducted by MSDE: Awareness Conferences, Summer Institutes, and Follow-ups, each designed to build upon each other.

Awareness Conferences were conducted at two-week intervals beginning December 4, 1980. LEA superintendents from 20 of the 24 LEAs agreed to send cross-hierarchical teams to all four in order to determine whether they wished to implement any of the topics. MSDE staff and faculty of Institutes of Higher Education were also invited. Advance reading materials were sent to all 300 invited guests in November. Each conference focused on one topic and each was conducted by the developer or research team who designed the topic. Benjamin Bloom (ML) attracted a large crowd but provided the least practical information. Thomas Good and his assistant (AT) emphasized research to a greater extent than participants wanted. David Helms and the RBS team (TV) were fairly well received, and

Robert Slavin and the Johns Hopkins Team (STL) provided participants with a relevant overview. The Conferences introduced state educators to SITIP and offered awareness level information on instructional strategies proven to be effective in increasing student achievement in academic subjects. In general, participants had inadequate information for the development of clear or comprehensive implementation plans. Also, communication between MSDE and LEAs and between role groups within LEAs had rarely succeeded in ensuring that participants understood the SITIP design or objectives.

For each topic, developers conducted a three-day Summer Training Institute for local implementation teams and a one-day orientation session for MSDE staff. Results indicated that STL implementers were ready to carry out their plans, ML implementers were ready but had personal concerns about the amount of work to be done, AT implementers were somewhat uncertain, and many potential TV implementers felt overwhelmed which led to some LEAs dropping the topic.

Follow-ups were designed and conducted by MSDE TAs for topic implementers according to their needs. All included local "share and tell" sessions which facilitated networking, and three involved outside "experts" who clarified topic elements and reinforced SITIP validity. For STL each LEA team attended two Follow-ups (with the second including classroom observation of STL), for AT and ML teams attended a two-day "retreat," and for TV, each LEA team met with two or three others that were geographically close by. Follow-ups helped clarify, encourage, and energize. While local educators enjoyed "enrichment" activities, their needs were better met by activities focusing on the topic or elements needing clarification.

Training activities required considerable resources in terms of time, energy, and consultant fees. Factors contributing to some degree of dissatisfaction or only partially accomplished objectives included: inadequate communication of expectations (among participants and to presenters); insufficient attention by presenters to expressed needs of participants and to real practical implications for implementation; insufficient opportunity for participants to share their ideas and concerns; and too much information or "off topic" information presented given available time, needs, and energy. Factors contributing to success included: credibility of presenters and validity of topics; use of time that allowed for varied activities, media, and interactions; clearly understood expectations by all involved; attention to participants' needs (in preparation) and to their interests and concerns (during the event); and use of focused, relevant, practical information with a sound knowledge base.

Attendance. Cross-hierarchical teams were encouraged to attend training events, and in most cases LEAs complied with this suggestion (see Table 1).

- Training activities were best attended by teachers, who were represented (for all LEAs) in at least two of the three events -- usually the summer institutes and follow-ups. With the exception of two sites, all LEAs sent school administrators to at least two training events, with slightly less participation in the summer institutes than in the other two events. With the exception of one site, all LEAs sent central office staff to at least two training events with the awareness conferences being the most popular. Lack of involvement in training by central office staff caused no problems, since leadership was assumed by the principal at that site. Lack of involvement in training by school administrators may have contributed to feelings of lack of administrative support expressed by teachers at the lighthouse site, and no problems were immediately apparent at the capacity-building site, since leadership and staff development responsibilities were assumed by central office staff.

Table 1

Participation of Role Groups in MSDE-Initiated Activities

County	Topic	Training			Planning			All Activities
		Conf.	SI	FU	Prop.	Sp. P	Fl. P	
Allegany	ML	1 2 3	1 2 3	1 2 3	1 2 3	1 3	1 2 3	1 2 3
Anne Arundel	ML	1 2 3	1 2	1 2 3	2 3	1 2	1 2	2
Baltimore City	ML	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
Baltimore County	ML	2 3	1 2	1 2 3	3	1 2	2 3	
	STL	2 3	1 2	1 2 3	1 2 3	1 2	1 2 3	2
Calvert	STL	1 2 3	1 2	1 2 3	1 2 3	1 2	1 2	1
	TV	1 2 3	1 3	1 2	1 2 3	1 2	1	1
Cecil	AT	2 3	1 2 3	1 2 3	2 3	2 3	1 2 3	2 3
Charles	STL	1 2 3	1 2	1 2	1 2	1 2	1 2	1 2
Frederick	TV	1 2 3	1 2 3	1 2 3	1 3	1 3	1 2 3	3
Garrett	AT	1 2 3	1 3	1 2 3	2 3	1 3	1 3	3
Harford	AT	1 2 3	1 2 3	2 3	data incomplete			
Howard	ML	1 2 3	1 2 3		1 2 3	1 2 3	2 3	
Kent	TV	3	1 2 3	1 2 3	3	2 3	2 3	3
Montgomery	AT	2 3	1 2 3	1 2	2 3	2	2	2
	STL	2 3	1 3	1	3	1	1 2	
	TV	2 3	1 2 3	1 2 3	2 3	1 2	2	2
Prince George's	STL	3	1 3	1 3	1 3	1	1 3	
Queen Anne's	STL	1 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 3
St. Mary's	AT	1 2 3	1 2 3	1 2	1 2 3	1 2 3	1 2	1 2
Somerset	TV	1 2 3	1 2 3	1 2 3	1 3	1 3	1 2 3	1 3
Washington	STL	1 2 3	1 3	1 2 3	2 3	1 2 3	1 2 3	
Worcester	ML	1 2 3	1 2 3	1 2 3	2 3	1 2	1 2	
	STL	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2	1 2

Topic Key

AT = Active Teaching
ML = Mastery Learning
STL = Student Team Learning
TV = Teaching Variables

Activities

Conf. = Awareness Conference
SI = Summer Institute
FU = Follow-up
Sp. P = Spring Planning
Fl. P = Fall Planning
Prop. = Proposal Preparation

Roles

1 = Teachers
2 = School Administrators
3 = Central Office Staff

- The team approach for training was successful in that the "bundle of sticks" was stronger than a "single branch" in building local knowledge and encouraging trainers to attend to implementation concerns of each role group. Overall attendance -- numbers, roles, and sustained participation -- was good. As more turnkey training occurs (for local dissemination) and current implementers' initial enthusiasm levels off, the knowledge and support of central office staff and school administrators will become more crucial -- especially for those STL counties with relatively low attendance for those two role groups.

Participant Needs and Concerns. Three perspectives were addressed: before the activity, during the activity, and needs expressed for the future.

- Beforehand, individual participants did not influence the design of Awareness Conferences, but general approval was given by 20 LEA superintendents. Participants did influence the Summer Institutes through group in-person discussion with MSDE staff, and by their responses to the Stages of Concern Questionnaire (SoCQ). Local input into Follow-ups varied. All MSDE TAs had SoCQ data, copies of local plans, and opportunities to talk with local implementers. Purposes varied. All shared agendas ahead of time, and most local influence was apparent for TV and least for ML Follow-ups.

- During the events, needs were least well-met by Awareness Conferences (although STL was considered fairly successful). Summer Institutes were better, although for AT and TV participants felt that needs identified beforehand were not adequately addressed. All Follow-ups were successful in addressing participant needs.

- Future needs related to planning and implementation and increased in specificity as participants gained in understanding of the processes. These needs were satisfied by 1) allowing for clarification or revision of plans at the beginning of implementation, and 2) providing technical assistance from formally assigned MSDE staff.

- By the end of the 1981-82 school year, the most serious training needs related to concrete knowledge of the processes (TV, and to some extent ML) and how they should be implemented. This need relates partly to complexity (TV and ML are more complex than AT and STL), and partly to 1980-82 training (TV Summer Institute was not rated highly, and ML Awareness and Follow-up sessions were not highly informative about "nuts and bolts").

Relationships of Training to Planning and Implementation. The sequence and timing of the three kinds of formal training events provided excellent

support for local planning and implementation. Specific findings of interest include:

- The Awareness Conferences provided a knowledge base which determined topic and site selection.
- Summer Institutes provided information, demonstration, and practice sufficient for most participants to implement the topics selected or provide training for other implementers, and for participants to clarify their own plans.
- Follow-ups provided information, opportunity for implementers to network, and in some cases (STL and TV) feedback and coaching from developers to implementers.
- The overall design, team attendance patterns, and time frame, together with gradually improved MSDE/LEA communication through MSDE TAs were perceived by participants as very good to excellent. There is no doubt that the SITIP training design has contributed in a high degree of implementation much of which is "high fidelity" (i.e., as intended by the developer).
- No single type of training event was "better" than another since each served a different purpose. Together the series of training events provided a sound knowledge base and appropriate support for local implementation.

Technical Assistance

Eight MSDE staff were assigned to provide technical assistance in the summer of 1981, each permitted to spend two days a month on SITIP, and all part of a system coordinated by the Assistant Deputy Superintendent (ADS). Their major objective was to facilitate implementation of local plans by providing information, building an interactive communication network, conducting training, and providing on-site assistance. These efforts took slightly more time than allocated, and efforts were unevenly distributed between TA partners with, on average, one spending about twice as much time as the other. No formal training was provided for TAs but they all had field experience, a task orientation, and between them they helped each

other to resolve difficulties. Their efforts were appreciated by LEAs and most found intrinsic rewards in their involvement in SITIP. Without the TAs many sites would not have achieved the scope of implementation or have resolved problems as successfully as they did.

Some points of specific interest include:

- During the first 12 months of SITIP (December 1, 1980 to November 30, 1981) each TA spent between 11 and 45 days on SITIP-related activities. On average, each person spent just under ten days learning about the topic assigned and planning topic activities, about seven days on other topics or SITIP in general, and about eight days actually assisting LEAs. Time investments varied slightly among individuals and topics, with about equal amounts of time (45-47 days per topic) spent by TAs involved in AT, STL, and TV, and less (36 days) by TAs involved with ML.

- Since most LEAs did not begin implementation until late October 1981, most TA work until that time was preparatory and administrative: they learned their topics, became familiar with local plans and educators and SITIP in general, and began to see how their regular work related to SITIP.

- TAs had no special training, were given no additional help, and were not relieved from any of their usual responsibilities, although there was "official" agreement that each could spend two days a month on SITIP. There were three major factors which supported the TA efforts: 1) the overall SITIP design and leadership which combined a sound research base with flexibility for local implementation, 2) the topic partnerships and TA team meetings which maintained communication and facilitated shared decision-making and work assignments, and 3) the commitment and energy of the TAs themselves (which was sometimes strained, but which did not weaken).

- The TAs see themselves as linkers -- linking the LEAs to the knowledge base and topics and networking among sites; as facilitators -- helping LEAs achieve their own goals; as coordinators -- sharing materials and organizing activities such as follow-ups. All TAs agree that their primary objective is to provide assistance to address local needs in order to facilitate implementation.

- TA tasks take about 25 person days per month, i.e., each TA and the ADS spends between one and five days per month on SITIP. Levels of effort vary between individuals, but combined efforts for each pair of TAs indicate that for each topic there are about 20 interactions taking a total of three to four days of person time per month. These interactions vary from a ten-minute telephone call, to a

statewide mailing of information, to a two-day follow-up training session. Most interactions are proactive, that is, initiated by the TAs (about 65% for STL, 85% for AT, and about 90% for ML and TV).

- General administration and budget are primarily the responsibility of ADS, who invites TAs to make requests or recommendations about allocation of funds (e.g., for follow-up sessions), and to participate in decision-making. Each TA partnership is responsible for monitoring LEA use of grants (an average of $5,000 per year per LEA), and for efficiently managing resources allocated for materials and training for a given topic. General administrative and budget tasks are carried out by the ADS and administrators usually reporting to him (one of whom is "outside" the TA system). Combined effort of the TAs on administration and budget takes less than 5% of their time spent on SITIP.

- Planning is an on-going process and occurs in several ways. At the monthly TA meetings members review progress and plan improvements. They learn from each other how to facilitate local implementation, and they also look for ways to coordinate SITIP with other state initiatives or educational groups. By mid 1982, planning concerns were both short-term and long-term, individual TAs offered more ideas, and some advocated various ways to coordinate SITIP with other activities and groups. The ADS involved members of the MSDE Instructional Coordinating Council (ICC) in planning by keeping ICC members informed and by inviting their input.

- Training (from a system perspective) included the three kinds of MSDE-initiated activities described in the chapter on training in this report. In addition, after each of the Summer Institutes and before the 1982 Conference the developer/presenters conducted training sessions which were open to all MSDE staff. SITIP TAs assisted in planning and participated in these events if they were involved with SITIP at the appropriate time. This task area took about 22% of the TAs' SITIP time, with almost all spent on designing, organizing, and conducting the follow-up sessions.

- General support tasks took about 10% of the TAs' time and were the most frequent kind of interaction between LEAs and TAs. Most interactions were information exchanges or problem-solving discussions, while others were requests for materials or topic clarification, and some focused on logistics such as making arrangements for site visits. Interactions were almost all by phone, each required individual attention by the topic TA functioning as the key contact, and several required subsequent action such as linking LEAs with similar interests or obtaining and sending materials.

- Site visits took over 40% of the TAs' time, since each topic site was visited at last twice during the 1981-82 school year. These

visits were not for compliance monitoring although TAs did gain an understanding of the nature and extent of implementation at each site. In some cases TAs conducted topic training or assisted central office staff in designing or conducting training. TAs always visited classrooms and usually talked with all three LEA role groups. They collected copies of locally developed materials and distributed others. They participated in trouble shooting to address concerns of one or more role groups, and exchanged "good ideas" learned at other sites or from topic developers. They helped LEAs contact topic developers when necessary. In general, they provided resource support (money, materials, an extra body), technical support (expertise, training on the topic), process support (ideas about alternative ways of getting things done), and effective support (recognition and acknowledgement of local efforts). Individual style or degree of formality varied, but all TAs understood local norms and observed local protocol, and most tried to establish colleagial relationships with local educators.

- Evaluation of SITIP is conducted by RBS. TAs do not evaluate local implementation. Each LEA is responsible for evaluating itself. Since local expertise in evaluation is varied, and since it is not cost-effective for each LEA to duplicate efforts in development of measures etc., the TAs explored ways to build local capacity without increasing effort invested.

- Communication within the TA system is interactive. Communication between SITIP and other organizational groups is important because SITIP is designed as a collaborative effort, and because if it is to survive and grow it cannot have "project" status but should be incorporated into or coordinated with related instructional activities. Since the TAs are drawn from five MSDE divisions and the Office of Project Basic each can act as a boundary spanner. TAs spend 10% of their time maintaining communication with each other and with coordinating groups. This time includes system planning and some knowledge building.

- Dissemination is defined here as involving or informing others about SITIP, beyond those intended in the original plan. To date, SITIP TAs have been involved in two dissemination activities: 1) they assisted ADS in making presentations at a Regional School Improvement Conference, and 2) they exchange information with topic developers and conference presenters who in turn tell others about SITIP (subsequently resulting in inquiries from other states). These activities took about 6% of the TAs time over the seven-month period. Plans are under consideration to involve professional associations, and to increase involvement of institutes of higher education.

- The relative success of SITIP does not rest on the use of authority or on formal staff assignments and high resource allocations, but

is related to effective communication and collaboration and leadership which taps motivation such as the desire for professional growth.

- Problems TAs experienced included: competing responsibilities, demands on their time, and some initial confusion in adjusting workloads.

- In working with LEAs, TAs had to learn to deal with bureaucracy, develop non-standardized strategies and materials to satisfy varying local needs, discourage competition, and maintain energy and enthusiasm.

- A task orientation and drive toward social power (democratic shared leadership for the benefit of the local implementers) are appropriate for effective delivery of technical assistance. Incentives included evidence of group success, acknowledgement by supervisors of TA efforts, and opportunities to learn more or take on additional responsibilities.

- The nature and extent of local implementation would have been considerably less without the TAs. They provided information and encouragement, established networks and shared successes, and crossed hierarchical boundaries to help LEAs resolve problems. Their efforts were well-received by local educators with whom they interacted, since the TA role was quickly understood and appreciated by almost everyone.

- Future needs and concerns relate primarily to the time needed to maintain local energy as new sites are added. Also, there is some emerging evidence suggesting that some LEAs have passed the trial stage and are developing sophisticated needs for highly technical expertise. While some TAs can deal with such needs, others are currently less able to do so. (Influential factors include time, knowledge, and style.) The 1982-83 school year will bring new challenges. Based on evidence to date, the TA system will meet those challenges and build on present successes.

Local Implementation

The study looked at the first year of local implementation: the 1981-82 school year. For each of the four processes data were collected and analyzed in five areas: scope and intensity of implementation, local participation in MSDE-initiated activities, roles and responsibilities of implementers, impact, and participant needs and concerns.

Scope and Intensity

During the 1981-82 school year 19 Maryland school systems were in involved in SITIP, 15 implementing a single process and four implementing two or three processes. Over 65 schools were involved, with more than 68 teachers working with over 866 classes in all grade levels. Reading/language arts was the most popular curricular subject, followed by mathematics, science, and social studies. Actual implementation was compared with that which was planned. It should be noted that plans covered two years and current data relate only to the first year. (Results are summarized in Table 2.) Specific findings include:

- Scope was higher for less complex processes, with AT used by 514 teachers, STL by over 177 teachers, ML by 93 teachers, and TV by 58 teachers.

- Strategies used reflected local need, role group enthusiasm, and level of effort an LEA was willing to invest. (It should be noted that LEAs adopting more than one process sometimes employed more than one strategy.)

  - District-wide strategy (one LEA, AT) demanded high effort, high central office involvement, perceived need by all role groups (especially the superintendent).
  - Pilot/district strategy (four LEAs, four processes) demanded effort from all role groups, including central office staff. Involvement and expansion are influenced by process complexity, with ML posing most challenges.
  - Capacity building strategy (five LEAs, AT and STL) varied in scope from one school to the whole county, and used different role groups as trainers. Success related to the effort invested in training, not only workshops but also in follow-up assistance (coaching and trouble-shooting).
  - Lighthouse strategy (ten LEAs, four processes) focused on the school site, with no formal commitment from central office staff to become actively involved. Problems occurred when school-based staff resented perceived lack of support. Success related to support/involvement of all role groups and enthusiasm of site leadership (50% of which was by teachers).

- All grade levels were involved. No greater difficulties were experienced in secondary than in elementary schools. In secondary

Table 2

Strategy, Scope and Target: Topics as Implemented
(1981-82)

	Topics	Implementation Strategy	# Schools	# Teachers	# Classes	Grade Levels	Curriculum Subjects	Scope*	Time (weeks)
Allegany	ML	LS	1	27	22	K-12	M, R/LA, Sc, SS	M:100%; others 10-20% (1-3U per T)	6
Anne Arundel	ML	LS	1	4	4	9-12	Sc	Sc:100%	5
Baltimore City	ML	PD	1	40	57	10-12	Various	5-100% (2Us per T)	3
Baltimore County	ML STL	LS PD	1 2	3 7	3 17	3, 4 3-8	M M, R/LA, Sc, SS	M:100% 15-50%	9 6
Calvert	STL TV	LS LS	1	3 18	4 18	6-8 6-8	R/LA, SS M, R/LA, Sc, SS	3 obs per T; M, R/LA: 100% "content"	8 10
Cecil	AT	PD	4	16	34	4, 6-8	M, R/LA	M:80-100%; R/LA: 20-60%	8
Charles	STL	LS	1	19	35	6-8	M, R/LA, Sc, SS, Other	5-40%	4
Frederick	TV	PD	1	12+	12+	7-12	M, R/LA, Sc, SS	3 obs per T	8
Garrett	AT	LS	1	7	19	9-12	M, R/LA, Sc, SS	M:100%; others 40-80%	9
Harford	AT	DW	26	434	434	1-6	M	M:80-100%	3+
Howard	ML	LS	1	5	5	1, 2	M	M:12% (1U per T)	1
Kent	TV	LS	1	8	8	1-4	R	3 obs per T	3
Montgomery	AT-TV STL TV	LS LS LS	1 1 1	5 7 6	5 21 13	2-5 7-9 6	M, R/LA M, R/LA, Sc, SS M, R/LA	M:80%; R/LA:15% 5-100%	8 6 10
Prince George's	STL	CB	10+	28	41	K-2,4-6, 9-11	M, R/LA, Sc, SS	10-25%	6
Queen Anne's	STL	CB	1	6	15	9-12	M, SS, Other	no data	8
St. Mary's	AT	CB	1	10	23	9-12	M, R/LA, Sc, SS	M:80-100%; others 20-50%	8
Somerset	TV	LS	1	2	2	1, 2	R/LA	3 obs per T	5
Washington	STL	CB	3+	20+	30+	4,6,7	M, R/LA, SS, Other	20-50%	7
Worcester	ML STL	LS CB	1 1	3 13	3 14	1, 2 K-5	M M, R/LA, Sc, SS, Other	M:100%	9 7

*Scope: Percent of allocated time for subject selected, and for TV number of observations per teacher.

Subjects Key

M = Mathematics
LA = Language arts
R = Reading
Sc = Science
SS = Social studies

Strategy Key

CB = Capacity building
DW = District-wide
LS = Lighthouse school
PD = Pilot/district

Scope Key

T = Teacher
U = Unit

schools teachers focused on curricular area: elementary teachers focused on grade level. Principal involvement was about the same in both types of schools, but when an additional "leader" was needed, it was easier to arrange in secondary than in elementary schools.

- Time spent ranged from 5% to 100% of the allocated time for a subject in a given class over a period from between one month and the full school year. Ten LEAs implemented a selected process for at least 50% of the allocated time for a subject for at least five months. Most time was spent for AT and ML on structured curricula. Some STL implementation was sporadic.

While some LEAs exceeded their objectives (in terms of scope) others only partially achieved the objectives specified in their plans. However, plans covered a two-year period and findings presented here relate only to the first year. In general, scope and intensity ranged from "reasonable" to "very impressive." However, lighthouse and capacity building sites need to clarify or revise support and level of effort if objectives are to be maintained or reached. Also, some STL sites need to check frequency or intensity of use, and some TV sites need to explore use of strategies and implementation of the "content" variable if planned scope is to be achieved.

Impact of LEA Participation in MSDE-Initiated Activities

Participation of three role groups (teachers, school-based administrators, and central office staff) was encouraged for six critical activities: three for training and three for planning (see Table 1). MSDE argued that: 1) expertise and commitment is increased if those who are to carry out the tasks are involved in planning and training events, and 2) knowledge shared is more lasting than knowledge held by one individual or role group. Key findings relating to participation are summarized here:

- Sustained involvement of specific individuals was important to maintain continuity. At six sites, no one sustained participation in all six activities. At three of those sites problems resulted: 1) lack of awareness of other LEA activities stressed within-LEA resources (expertise, networking support), and 2) commitment and energy to implement were relatively low.

- Where role group participation was adequate (at least two groups represented in at least two training and two planning activities) fewer communication problems occurred (all but one LEA).

- Where role group participation was adequate and at least one person from each role group sustained involvement in all activities, the only implementation problem that was apparent related to scope, i.e., plans were slightly more ambitious than could be carried out (two ML sites).

- Where role group participation was adequate and the person(s) assuming leadership sustained involvement (12 LEAs), few implementation problems occurred as long as the leaders shared information with others.

Roles and Responsibilities of Local Implementers

In an attempt to determine the nature and extent of effort invested on SITIP and how responsibilities were shared among role groups, three areas are addressed here: 1) influential factors, 2) activities and levels of effort, and 3) interactive support.

Influential Factors. There were three main factors influencing patterns and levels of effort: 1) the implementation strategy, 2) the complexity of the innovation/process, and 3) the organizational norms -- local characteristics of decision-making and communication. In looking at data on effort invested, and comparing processes, the following should be kept in mind:

- Active Teaching: Strategies required active involvement of all role groups. As implemented, AT is simple and classroom-based. Scope was larger than for any other process (33 schools, 472 teachers).

- Mastery Learning: Strategies were school-based. As implemented, ML is complex and suggests a need for cross-hierarchical coordination. Scope was moderate (81 teachers in six schools).

- Student Team Learning: Strategies were primarily teacher-oriented or classroom-based with initial involvement or light monitoring by school administrators and central office staff. As implemented, STL is fairly simple and classroom-based. Scope was moderate to high (100+ teachers in 20+ schools).

- Teaching Variables: Strategies were primarily school-based with active involvement by central office staff in three of the five LEAs. As implemented TV is moderately complex suggesting a need for interaction between observers and teachers observed. Scope was low (50+ teachers in six schools).

Activities and Levels of Effort. Tables 3, 4, and 5 summarize data on perceived amount of time spent on SITIP processes in comparison to other improvement projects. Given the dominant strategies and the relative complexity of the processes as implemented, the following points are of interest:

- Active Teaching made greater demands on the people organizing and supporting implementation than it did on the teachers using it, with the greatest combined effort spent on learning/training for topic use, and supporting implementation through staff interaction. Teachers found AT relatively undemanding.

- Mastery Learning made more demands on teachers than on other role groups, although both school administrators and central office staff spent time on becoming informed, on interactive support, and on administration.

- Student Team Learning was more demanding for school-based staff than for central office staff, with most combined effort spent on learning/training and interactive support.

- Teaching Variables was relatively undemanding for school-based staff, with central office staff spending most time on interactive support and learning about the process.

- The average investment of effort, combining all role groups per process, relates to the complexity of the process as implemented, with most for ML, followed by TV, STL, and AT.

Table 3

Time Spent in Comparison to Other Projects:
Central Office Staff

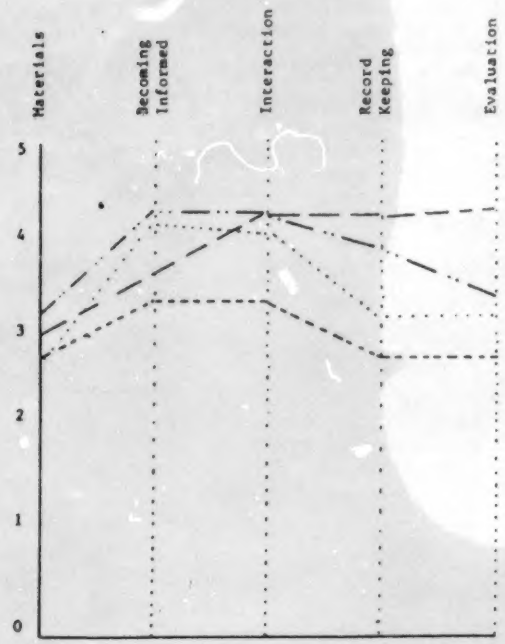


Table 4

Time Spent in Comparison to Other Projects:
School Administrators

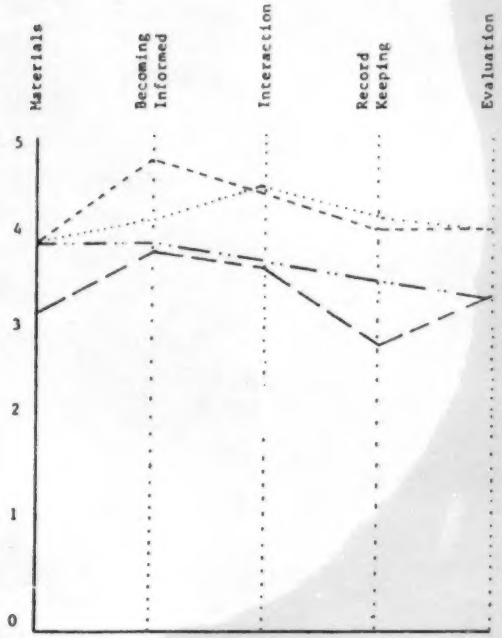
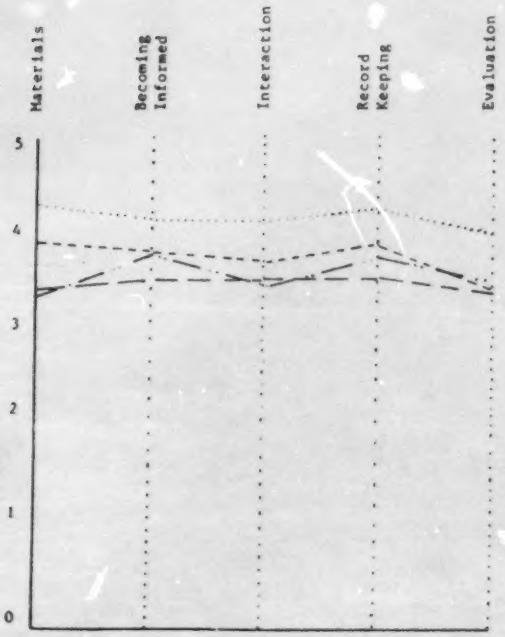


Table 5

Time Spent in Comparison to Other Projects:
Teachers



Mean ratings range from a low of 1.00 (substantially less time) to a high of 5.00 (substantially more time).

_ _ _ _ Active Teaching

..... Mastery Learning

- - - - - - Student Team Learning

_ .. _ .. Teaching Variables

- The patterns of investment (how work is shared among role groups) are related to the implementation strategy used for all processes except TV. (In that case the nature of the process influences patterns depending on who carries out the observation tasks. This decision is influenced by the organizational norms of the LEA.)

Interactive Support. The nature of the strategies used and of the processes as implemented largely determined the extent and nature of support among role groups. A third factor was individual commitment, demonstrated by initiative, encouragement of others, and taking on work that needed to be done. These (leadership) behaviors were sometimes assumed by a (senior) role group, but were also apparent in people with no formal authority. LEA norms influenced such behavior.

In addition to observations and interviews, data were collected about support by asking participants to rate role groups on a scale from very poor (1.00) to excellent (5.00). Results are presented in Table 6. Responses are very strongly influenced by visibility. That is, if respondents came in contact with supporters or saw clear evidence of support they were more likely to give a favorable response (e.g., STL developers were actively involved with all three role groups on-site or at follow-ups and received an overall rating of 4.17). If respondents received support second-hand they were more likely to credit the supporter they saw rather than another who may have developed or organized the support received (e.g., most AT teachers did not come into contact with MSDE staff or topic developers and awarded ratings of 2.88 and 2.96 respectively).

Focusing on local educators' perceptions of each other's support, the following points are of interest:

- Teachers consistently award lower ratings to all support sources than do other role groups, and for all but TV they rate other

Table 6

Perceptions of Support Received, by Topic and Role

Topics and Respondents	N	Sources of Support				
		Teachers	School Administrators	Central Office Staff	MSDE	Developers
Active Teaching						
CO	7	4.12	4.12	4.14	4.00	3.57
SA	21	3.76	4.00	3.75	3.56	3.50
T	98	3.45	3.67	3.66	2.88	2.96
TOTAL	126	3.54	3.74	3.70	3.09	3.09
Mastery Learning						
CO	7	4.43	4.14	4.00	3.71	4.14
SA	8	4.25	4.67	4.75	4.50	4.50
T	53	3.39	3.59	3.11	3.13	3.14
TOTAL	68	3.59	3.75	3.39	3.35	3.40
Student Team Learning						
CO	7	4.43	3.86	4.40	4.57	4.71
SA	8	4.43	4.00	4.00	4.44	4.11
T	37	3.66	3.90	3.14	3.90	4.08
TOTAL	52	3.88	3.91	3.41	4.07	4.17
Teaching Variables						
CO	6	4.50	4.50	4.00	3.67	3.33
SA	5	4.60	4.25	3.40	4.40	4.00
T	16	3.56	3.50	2.81	3.25	3.19
TOTAL	27	3.96	3.85	3.19	3.56	3.37
TOTAL						
CO	27	4.36	4.14	4.14	4.00	3.96
SA	42	4.08	4.[illegible]	3.95	4.01	3.87
T	204	3.48	3.67	3.36	3.16	3.23
TOTAL	273	3.66	3.78	3.52	3.39	3.40

Mean ratings range from a low of 1.00 (very poor) to a high of 5.00 (excellent).

teachers as less supportive than school administrators. Combined ratings award teachers highest for TV and second highest for all other processes. (TV is the only process requiring teacher interaction.)

- School administrators consistently award fairly high ratings, perceiving teachers as slightly less supportive than themselves for AT and ML and more supportive for STL and TV, and finding central office staff more supportive for ML, equal to themselves for STL, and less for AT and TV. Combined ratings give school administrators highest scores for all but TV. (The first year of SITIP for all processes is primarily school-based.)

- Central office staff consistently award high ratings, placing themselves first only for AT. (All four strategies were used for AT, and when staff development occurred it was the responsibility of central office staff at all but one site.)

- Nearly all ratings indicate that each local role group provided very good to excellent support. Average or below ratings were awarded to teachers for AT and ML (by themselves), and to central office staff for ML, STL, and TV (by teachers) and for TV (by school administrators). (As stated earlier, ratings reflect supporters' visibility. They are also negatively influenced if organizational norms block communication across role groups.)

For a process to be successfully implemented, each site needed a process advocate or team perceived by local participants as being "in charge." Initially, project directors were named (central office staff or school administrators), but, as implementation got underway, it became apparent that in some cases the title did not necessarily mean that the incumbent provided support and leadership. By the end of the year, most sites had a process advocate, two had a team sharing leadership, and in two cases leadership (as a source of energy and initiative) was somewhat uncertain. Process advocates were sometimes teacher coordinators (in four cases incumbents previously held positions of authority, and in three cases they "evolved" into the leadership role).

Problems occurred when there was uncertainty about project leadership and when school-based staff were not informed of central office plans or decisions or did not receive materials sent to central office by MSDE or process developers. Positive affect and high productivity were likely when everyone understood what was to be done and appropriate resources were made available.

The greatest resentment and the least or poorest implementation occurred in cases where school-based staff felt they had been insufficiently represented in planning/decision-making and were subsequently left relatively uninformed. If kept informed, and if the role group had been represented in planning, even if participants did not like all the decisions, they did implement the process and they were not hampered by anger and resentment. Decision-making and communication practices were determined primarily by organizational norms, but were subsequently influenced by individual local participants, by the overall SITIP design, and by MSDE-initiated activities.

Impact

For the first year of implementation, data were collected by site visits and interviews and by a survey by which respondents estimated impact in terms of instructional value and impact on teachers and students. Survey data are presented in Table 7. All data are summarized below:

- In terms of instructional value, all processes were perceived as practical and relevant, with all but TV providing useful new strategies of instruction or clear organizational methods for lesson planning and classroom management.
- While all but AT took more time than other similar projects or processes, they were not more trouble than they were worth.

Table 7

Impact of Topics as Perceived by Active Implementers (June 1982)

Areas of Impact / Topic / Role	Active Teaching				Mastery Learning				Student Team Learning				Teaching Variables				Overall			
	CO	SA	T	Total	CO	SA	T	Total	CO	SA	T	Total	CO	SA	T	Total	CO	SA	T	Total
N =	9	27	125	161	8	8	56	72	7	9	38	54	6	5	16	27	30	49	235	314
Instructional value																				
It is worthwhile/workable.	4.67	4.48	4.28	4.33	4.37	4.81	3.89	4.05	4.71	4.70	4.22	4.36	4.16	4.35	3.81	3.98	4.50	4.56	4.14	4.24
It is more work that it's worth.	1.56	1.70	2.06	1.97	2.75	2.38	3.00	2.90	1.86	2.22	2.03	2.04	1.83	2.20	2.56	2.33	2.00	1.96	2.31	2.22
Impact on teachers																				
Ts enjoy it.	3.89	3.21	3.60	3.65	4.00	4.13	3.48	3.61	4.57	4.22	3.92	4.06	3.50	3.80	3.07	3.31	4.00	3.61	3.59	3.68
Ts gain knowledge.	4.11	3.93	3.53	3.63	4.63	4.63	3.63	3.85	4.14	4.44	4.18	4.22	4.17	4.20	3.75	3.97	4.27	4.17	3.67	3.81
Ts increase skills.	4.33	3.96	3.65	3.74	4.25	4.50	3.49	3.69	4.00	4.25	3.95	4.00	4.17	4.25	3.69	3.89	4.17	4.13	3.66	3.79
Impact on students																				
Ss enjoy it.	3.89	3.67	3.82	3.80	4.00	4.38	3.74	3.84	4.86	4.78	4.32	4.46	3.00	3.80	3.19	3.26	3.97	4.00	3.84	3.88
Ss are more involved in work.	4.44	4.30	3.82	3.93	3.75	4.13	3.53	3.62	4.43	4.13	4.00	4.08	3.50	3.50	3.44	3.46	4.07	4.16	3.75	3.84
Ss increase achievement.	3.50	3.62	3.50	3.52	3.56	3.93	3.37	3.46	3.79	3.95	3.64	3.70	3.09	3.68	3.13	3.21	3.50	3.74	3.47	3.51
Time																				
Ts spend more time preparing Ss.	3.11	2.81	2.71	2.75	4.37	4.00	3.87	3.94	4.00	3.78	3.55	3.64	2.33	2.20	3.06	2.74	3.50	3.12	3.15	3.18
Ts cover curriculum in less time.	3.11	3.00	2.93	2.95	2.50	2.87	2.86	2.33	2.57	2.78	2.37	2.46	2.83	2.80	2.56	2.67	2.77	2.92	2.80	2.70

NOTE: Mean ratings range from 1.00 (Strongly Disagree) to 5.00 (Strongly Agree).

CO = central office
SA = school administrators
T = teachers
S = student

- Impact on teachers as determined by increased knowledge and skill was rated more highly by central office staff and school administrators than by teachers.

- Participants reported that students were more involved in their work, and (for all but TV) use of the processes increased student motivation and helped students retain more of what was taught. For two ML sites and a TV site, data from national standardized tests indicated significant improvement in student achievement.

Participant Needs and Concerns

Needs and concerns of participants were identified by interview, open-ended questions on surveys, and by the Stages of Concern questionnaire. Results are summarized here.

The overall pattern of responses suggests that:

- If the SITIP processes are as worthwhile as developers claim and many implementers report, their relative importance may need to be reconsidered (to increase SITIP priority level) by some LEAs, particularly by central office staff.

- For all but AT, networking and other activities are needed to continue to address collaboration needs.

- For all but STL, and mostly for ML, personal concerns need to be addressed, which usually means that teachers need clarification about what is expected of them, support in terms of time or materials, and acknowledgement of efforts and accomplishments.

- For ML, and to some extent TV, management concerns need to be addressed, possibly in similar ways to personal concerns, with some technical information also provided.

- For all processes, concerns reflect the fact that implementation is occurring as planned, but more complex processes require greater support efforts to attend to personal and management concerns.

Recommendations made by participants for the 1982-83 school year fell into four general categories: support, training, dissemination, and topic changes. Also, about 24% of responses indicated that no changes were needed. Needs are summarized as follows:

- Support needs were defined by respondents as demonstration of commitment and involvement (especially from central office staff), clear communication (especially relating to guidelines or plans), provision of materials, planning time or provision of teacher substitutes or aides to allow for common planning by participating teachers, and problem-solving assistance for teachers. Most such needs were identified for AT and TV. About 15% of responses identified support needs.

- Training or inservice needs were identified by about 17% of the respondents, with most for AT and ML. Several respondents said they would prefer to learn by inter-class or inter-school visits followed by "sharing sessions" rather than by formal workshops.

- While about 21% of responses (about evenly spread across processes) recommended dissemination for expansion of topic implementation to other classes or schools or by use of other variables (TV) or methods (STL), about 3% suggested that implementation should stop or that processes should be used only by volunteers.

- Changes to the topic were recommended by about 24% -- all for AT. It is likely that this group of respondents needs more accurate information about the relative flexibility of the process, and they may also need to be involved in activities to increase commitment.

Participant needs and concerns appear to relate to the nature and extent of cross-hierarchical communication and collaboration, the implementation strategy used, and the complexity of the topic. That is, fewest needs or problems occur when each role group fully understands what is to be done and can obtain assistance (information, support, training) from each other or from "outside" without too much difficulty. Such effective communication and collaboration are influenced by the level of commitment to or interest in the topic and reflect the organizational norms of the LEA. Demands are greater for the more ambitious strategies (e.g., district-wide implementation) than for, say, a lighthouse school. However, in lighthouse sites, concerns and needs increase if cross-hierarchical communication is poor, since participants seem to experience a sense of isolation and/or resentment at perceived exclusion from needed information.

Also, the greater the complexity of the process as implemented, the greater the need. However, needs relating to process complexity occur only when communication and collaboration are insufficient for the implementation strategy used.

Critical Findings

SITIP is complex, flexible, and to some extent, its relative success is dependent upon the structure and organizational norms of the state. However, some findings of this study may assist others in planning instructional improvement efforts, especially because some clarify earlier studies and others challenge conclusions drawn by other researchers. Findings are presented in a sequence that begins with decisions that might be addressed by local educators in planning and goes on to issues that intermediate or state education agencies might address.

- Initial staff interest or commitment to implement a new program or practice can be built if: 1) the LEA superintendent permits staff to look at new ideas with the intent to implement if appropriate, 2) the innovation and its presenter/developer have validity and credibility, and 3) staff believe that they do have choices and can influence decisions.

- Staff interest (of all role groups, but particularly those that have the most work to do) is the most important factor in selection of the innovation and in determination of elements of the implementation plan.

- Cross-hierarchical planning facilitates mutual understanding which helps to prevent problems during implementation (such as communication breakdowns, resentment, feelings of isolation).

- Representation of the various role groups in planning and subsequent decision-making builds understanding and commitment, ensures inclusion of role group perspectives, and strengthens organizational knowledge so that if reassignments are made knowledge is not lost and new staff will not be given a one-sided briefing.

- The complexity of the innovation is determined by looking at the extent of new knowledge to be acquired, materials to be identified or developed, methods to be used in the classroom and in the school, and organizational arrangements to be made. Although some generalizations are possible, each LEA needs to examine innovation complexity for itself.

- Complexity ratings may differ for elementary versus secondary schools especially for the dimension relating to organizational arrangements which are more easily made in secondary schools than in elementary schools. Also, a curriculum focus reduces complexity for secondary schools while a cross-curricular grade level focus reduces complexity for elementary schools.

- The complexity of the innovation determines the amount of work to be done for a given school site.

- The implementation strategy determines how the work is shared among role groups and how the burdens shift among role groups over time.

- The implementation strategy plus the scope (number of schools, teachers, curricular subjects, grade levels, amount of time for the innovation to be used for each class or subject) determine how much work is to be done within a given LEA.

- The nature and extent of communication and decision-making determine productivity and affect.

- The organizational norms of the LEA determine communication and decision-making procedures.

- Incremental knowledge building with a series of interactive training and planning activities help to build an accurate understanding of the innovation's complexity and potential rewards, and allow revision or refinement of plans.

- Once implementation begins for the first year, the innovation is usually not adapted and the strategy does not change.

- Changes made during implementation sometimes reduce scope in order to maintain quality without stressing resource allocations.

- The most commonly changed factors are organizational norms -- communication and decision-making, coordination and leadership -- the way things are done and who does them.

- Changes in organizational norms are influenced by two forces acting almost simultaneously but not necessarily collaboratively: external "pressures," e.g., TA recommendations; and internal "pressures," e.g., process advocate recommendations or teachers' concerns.

- Regardless of the nature of the innovation all role groups must carry out certain tasks which are, in order of investment: 1) interactive support (acknowledgement, shared knowledge, problem-solving, resource allocation); 2) learning/training (before and during implementation); 3) record keeping; 4) materials identification or development; 5) evaluation; and 6) administration.

- Perceptions of interactive support reflect participants' assessment of each others' commitment. Judgements are based not only on how much useful help was provided but also on the visibility of the supporter (with lower ratings for low visibility).

- It is preferable for each role group to perceive high support from close role groups rather than distant ones. Therefore, visibility should be reduced with distance. For instance, teachers should perceive principals as supportive. If there is a problem a state TA may help central office staff (who turnkey ideas to the principal) or the TA (with central office permission) may help the principal. But the state TA does not provide support to the teachers when it should more appropriately come from the principal.

- Representatives of all role groups need a thorough understanding of innovations to be adopted so that: 1) plans are realistic, 2) reassignment do not result in the organization's loss of knowledge, 3) interactive support can occur, 4) no one group is overburdened, and 5) there is a reasonable chance for institutionalization and dissemination beyond initial pilot sites.

- Impact in terms of student achievement was evident to some extent, although not formally expected for the first year of implementation. Results suggest (tentatively) that greatest impact was made by Mastery Learning, followed by Active Teaching. Student Team Learning appeared to influence student affect more than achievement. Teaching Variables data are inconclusive.

- People providing technical assistance (TA) are most effective when they are: 1) responsive to the needs of the group (of implementers), 2) task oriented and knowledgeable about local norms, the innovation, and processes of planned change, and 3) skillful in facilitating shared decision-making and coordinated communication.

- Designs or plans for instructional improvement are most likely to be successful if: 1) participation (of organizations) is voluntary, 2) communication is multi-dimensional, 3) planning is interactive with training, 4) training and technical assistance are provided during implementation, 5) "lip service compliance" is not accepted as implementation, 6) adjustments of scope are considered legitimate and relate to resources available, and 7) each participant has some degree of choice about his or her involvement (nature or extent) in the effort. These elements were present in SITIP.